19 Sep 1991

TSEMA-G

TESTER, BIT ERROR

1. GENERAL. This procurement requires a bit error rate tester for digital communications capable of IEEE STD 488.1-1987 digital bus control.

2. CLASSIFICATION. Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications. The convertible/rackmountable requirement is invoked.

3. OPERATIONAL REQUIREMENTS. The equipment shall have the capability of detecting serial data errors on data transmissions having rates up to 12.928 Mbps. The equipment shall be capable of full duplex operation and shall meet the requirements specified below.

3.1 Bit error testing.

3.1.1 Clock frequency. 50 Hz to 12.928 MHz continuously selectable. The equipment shall also have the capability to recover the clock from the received data.

3.1.1.1 Clock stability and accuracy. ±5 ppm.

3.1.2 Synchronous rates. 50 bps to 12.928 Mbps.

3.1.3 Asynchronous requirements.

3.1.3.1 Rates. 50 bps to 20 kbps.

3.1.3.2 Codes. ASCII, BAUDOT.

3.1.3.3 Levels. 5, 6, 7, and 8 bits.

3.1.3.4 Parity. Even, odd, and none.

3.1.3.5 Stop bits. Selectable 1 or 2.

3.1.4 Test results. Bit errors, bit-error-rate, block errors, block-error-rate, errored seconds, error-free seconds, percent error-free seconds, availability, bipolar violations, excess zero detection.

3.1.5 Block size. 100 bits to 1 x 10E6 bits.

3.1.6 Test period. 1s to 24 hours with 1s resolution and continuous mode.

3.1.7 Test patterns and messages. 63 bits to 2E20-1 bit psuedorandom. Selectable fixed patterns of all marks and 1:1 shall also be provided. Messages: Fox and one user-programmable message up to 256 characters.

3.1.8 Signal monitoring. Monitor ports or other means shall be provided to monitor data and clock to and from the device under test.

3.1.9 Error insertion. Single error.

3.1.10 Interfaces.

3.1.10.1 MIL-STD-188-114. The equipment shall be provided with balanced and unbalanced NRZ data interfaces conforming to MIL-STD-188-114. A 37-pin connector in accordance with EIA Standard RS-449 shall be provided. A 37-pin to 25-pin adapter shall also be provided in accordance with EIA Standard RS-449.

3.1.10.2 RS-232. The equipment shall be provided with an NRZ data and printer interface conforming to EIA Standard RS-232.

3.1.10.3 T1. The equipment shall be provided with a RZ data interface dedicated to testing 1.544 Mb/s data rates.

3.1.10.3.1 Coding. Binary Eight Zero Substitution (B8ZS) and Alternate Mark Inversion (AMI).

3.1.10.3.2 Impedance. Terminated or bridged.

3.1.10.4 Remote control. A digital interface in accordance with MIL-T-28800 shall be provided.

3.2 Rackmounting. The equipment shall be contained in a Style E enclosure for portability and shall be provided with a conversion kit which will allow rackmounting in accordance with the convertible /rackmountable requirements of MIL-T-28800.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Operation at 400 Hz is not required. Maximum power consumption: 110W.

4.2 Weight. 20 kg (44 lb) maximum.

4.3 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.